

# Model 631, 632 Surface Mount Square Thick Film Resistor Network

### Electrical

Standard Resistance Range, Ohms	22 to 1Meg
Standard Resistance Tolerance, at 25°C	
A, B, K and S Circuits	±2% (<33 Ohms = ±1 Ohm) J & N Circuit ±5%
Operating Temperature Range, °C	-55° to 125°
Temperature Coefficient of Resistance, ppm/°C	±100 (<100 Ohms = ±250)
Temperature Coefficient of Resistance Tracking, ppm/°C	50
Maximum Operating Voltage, Vdc	50V or $\sqrt{PR}$
Insulation Resistance Ohms Minimum	10,000 Meg

### Mechanical

Lead Material	Copper Alloy, 60/40 Tin-Lead Plating
Lead Configuration	"J" Lead
Lead Coplanarity	± 0.002 in. (0.057 mm)
Substrate Material	Alumina
Resistor Material	Cermet
Body Material	Epoxy

### Environmental (Per MIL-R-83401) 'K'

Thermal Shock Plus Power Conditioning	(ΔR) ± 0.70%
Short Time Overload	(ΔR) ± 0.25%
Terminal Strength	(ΔR) ± 0.25%
Moisture Resistance	(ΔR) ± 0.50%
Mechanical Shock	(ΔR) ± 0.25%
Vibration Shock	(ΔR) ± 0.25%
Low Temperature Storage	(ΔR) ± 0.25%
High Temperature Exposure	(ΔR) ± 0.50%
Load Life, 1000 Hour (≤33 Ohms = ±1 Ohm)	(ΔR) ± 1.00%
Resistance to Soldering Heat (Per MIL-STD-202, Method 210, Cond. B)	(ΔR) ± 0.25%
Dielectric Withstanding Voltage	200V for 1 Minute
Temperature Exposure, Maximum	215°C/3 Minutes
Marking Permanency	per Paragraph 4.6.7
Lead Solderability	per Paragraph 4.6.6
Flammability	UL-94V-0 Rated
Storage	-55°C to 150°C

Specifications subject to change without notice.

### Standard Resistance Values

#### A & K Circuits, Isolated Resistors and B & S Circuits, Bussed Resistors

Ohms	Code	Ohms	Code	Ohms	Code
22	220	1.2K	122	39K	393
33	330	1.5K	152	47K	473
39	390	1.8K	182	56K	563
47	470	2K	202	68K	683
56	560	2.2K	222	82K	823
68	680	2.7K	272	100K	104
82	820	3.3K	332	120K	124
100	101	3.9K	392	150K	154
120	121	4.7K	472	180K	184
150	151	5.6K	562	220K	224
180	181	6.8K	682	270K	274
220	221	8.2K	822	330K	334
270	271	10K	103	390K	394
330	331	12K	123	470K	474
390	391	15K	153	560K	564
470	471	18K	183	680K	684
560	561	20K	203	820K	824
680	681	22K	223	1Meg	105
820	821	27K	273		
1K	102	33K	333		

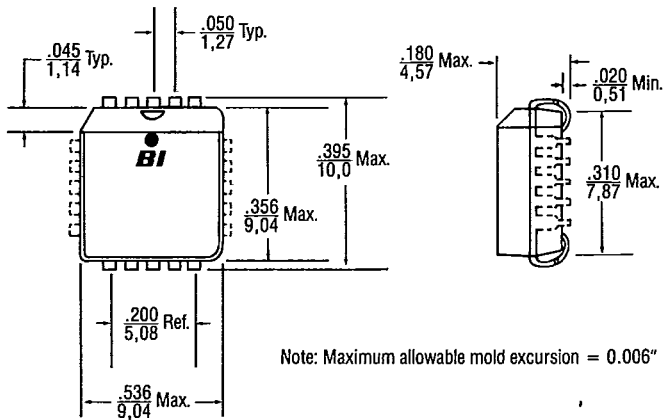
#### J and N Circuit, Dual Terminators

Ohms	Code	Marking	Ohms	Code	Marking
R1/R2	R1/R2		R1/R2	R1/R2	
180/390	181/391	06	330/470	331/471	10
220/270	221/271	07	3K/6.2K	302/622	13
220/330	221/331	08			

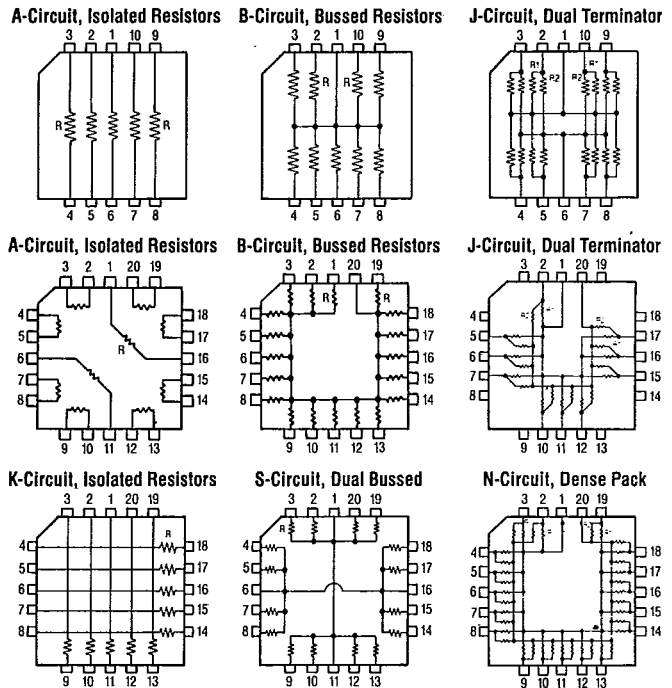
### Applicable Documents

- MIL-R-83401 — Resistor Networks, Fixed, Film, General Specification
- MIL-STD-105 — Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-202 — Test Methods for Electronics and Electrical Component Parts
- RS-481-A — Packaging Specifications: Tape & Reel, Magazine
- EIA-PDP-100 — SOJN-0001 Outline Dimensions

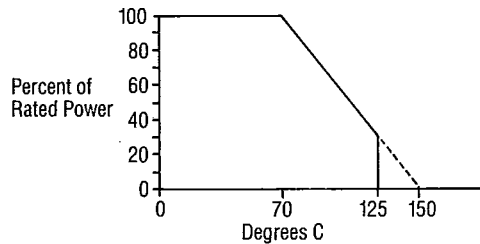
**Outline Dimensions** Inches  
mm



**Schematics**



**Power Derating Curve**



**Power (Watts) Dissipation @ 70°C**

Model	Package	Resistor (Per Circuit)					
		A	K	B	S	J	N
631	2.0	0.40	—	0.20	—	0.20	—
632	2.25	0.22	0.40	0.11	0.20	0.11	0.06

**Packaging**

**Standard: Magazine**

Dimensions conform to EIA and JEC standards.  
 All units oriented with lead #1 to the same side.

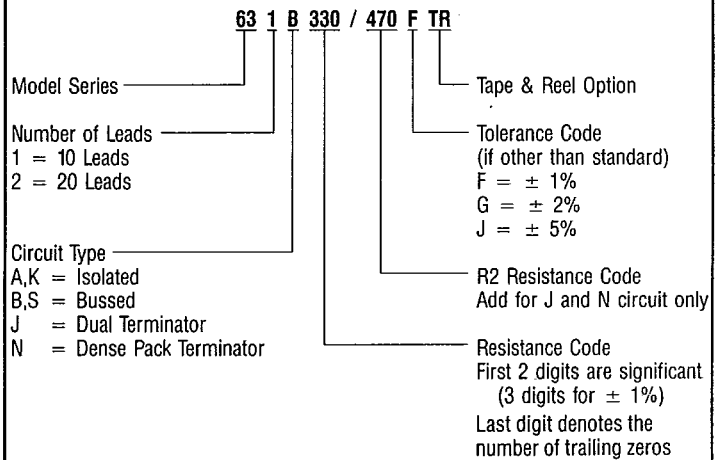
Magazine	Width	=	0.50" (12,7mm)
	Height	=	0.25" (6,35mm)
	Length	=	16.5" (420mm)
	Capacity, units	=	40

**Option: Tape & Reel**

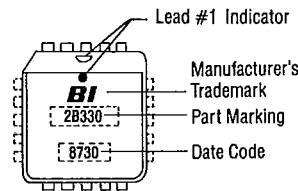
Conforms to requirements of RS-481-A.  
 All units oriented with lead #1 to the left of direction of feed.

Tape	Width	=	16mm
	Material	=	Embossed Plastic, Anti-Static
	Cover	=	Clear
Reel	Diameter	=	14" (356mm) Maximum
	Capacity, units	=	1,500

**Ordering Information**



**Typical Part Marking**



Part Number	Part Marking
632B330	2B330
632B330JTR	2B330J
632J221/331	2J08
632N221/331GTR	2N08G

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